Fig. 5 is a sectional elevation view in part showing the interior of the cabinet in Figure 4,

Fig. 6 is a sectional elevational view of a sample holding means for the cabinet of my invention between which and the sample therein is interposed a sheet of filter material,

Fig. 7 is a plan view of the holder of Figure 6, showing such filter and

Fig. 8 is a plan view of a third embodiment of my invention.

In Figs. 1 to 3 is shown a color fade testing cabinet of my invention which forms the subject of my pending application, Serial Number 665,247, filed September 27th, 1923, issued Oct. 27, 1925 as Patent No. 1,558,786, and to which reference is hereby made. In this cabinet the fused quartz mercury arc lamp 1 is used as the source of light in the multi-sided cabinet 2 in the sides of which the apertures 26 serve for holding and exposing the articles treated to such light. Between the apertures and the source of light are mounted the pivoted screens or filters 32. These filters are mounted on rods 33 which pass through the ends of the cabinet and are pivotally held thereby. These filters are substantially of the same width and length as the aperture before which they are registered, being of such dimensions as to shield such apertures entirely from said source. On the upper ends of the rods 33 are the knobs 34 which serve for turning said rods to move the filters in or out of registration with the openings 26. When it is desired to use the light without these filters the filters are turned and positioned radially with respect to the light source and the cabinet. When in this position the filters are entirely out of the way between the light source and the exposure openings but are easily and quickly movable to be positioned before the openings. By removing knob 34 and nut 35 from the rod 33 the rod and filters can be quickly removed through the opening in the top of the casing 2 and other filters of such different characteristics as desired are quickly replaceable therefor.

Should it be desired to modify the effect of filters 32 a sheet 36 of other filter material is interposed in sample holder 27 of Figs. 6 and 7 between the sample 37 and the sample holding grid 28, the springs 29 and the upturned edge 38 of holder 27 serving to hold the filter, sample and grid in the desired position. And in some cases I use a filter sheet held in holder 27, as described, as the only means of conditioning the light to the sample, the filter 32 at such times being turned out of registration to the exposure opening. For some purposes I use the sheet filter of Figs. 6 and 7 in conjunction with filter 32.

In Figs. 4 and 5 is shown another form of the application of my invention in which the filters 39 are held by the sliding rods 40 which pass through the ends of the cabinet and are frictionally engaged by bosses 42 through which they pass and are movable therein to bring the filters 39 in or out of registration with openings 26. Sufficient space is provided between the openings 26 and the ends of the cabinet to completely remove the filters from registration with their respective openings. In some forms of this apparatus I make all those filter clamps 43 which are at one end of the cabinet unitary to form a frame whereby all the filters at one end of the cabinet can be moved into or out of registration with their respective exposure openings 26 simultaneously.

In Fig. 8 is shown another embodiment of my invention in which the cylinder 44 of filter material is mounted at a substantial distance about the light 1. The material of cylinder 44 is preferably of colored glass or of glass having a coating of the desired light filtering qualities. The cylinder for some purposes is made in sections of different light filtering qualities which sections serve to pass lights of different wave-lengths to different samples exposed thereto severally, whereby different fading effects can when desired be determined at the same time with the same lamp. Likewise to serve under different conditions to produce different fading effects the cylinder 44 is made in different sizes whereby the size of the spaces between it and the exposed sample and between it and the light source can be changed to suit conditions of testing and in accordance with desired effects.

In controlling the dissipation of the ordinary radiant heat, which is always found to be a problem in the use of an artificial light source for such testing of color fading, I find that the position of the filter is an important factor. Thus, if the filter is of such a nature as to completely enclose the light source at a distance of one tenth the distance from the light source to the material under test, some five to ten per cent of radiant energy which would otherwise be reflected back from the first surface of the filter medium has no opportunity to escape from the space enclosed by the filter itself and is thus of necessity finally absorbed by the filter and re-radiated as heat. If, on the other end, the filter is placed at a greater distance than this from the light source, there is opportunity through the absorption of air for a more complete dissipation of the reflected energy. If furthermore the filter is placed in direct contact with the material under test, the resulting reflected air circulation produces an abnormal fading condition. And I find that very good results are secured by placing the filter media greater than one thirty-second of an inch from the material under test and greater than one tenth of the distance from the light source to the material under test from the source itself. As a